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## Factors Related to use of Communication Media Spectrum Communication Network Dissemination in Multi Channel

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### Abstract

This study aims to analyze the factors associated with the use of communication media in multi-channel dissemination. This research is using correlational description. In this research, respondents were selected by census. Primary data was collected through interviews using a questionnaire. The research was conducted in the village Setanggor Central Lombok. Data analysis was performed using descriptive statistical analysis, the relationship between variables using Pearson correlation analysis and Spearman Rank. The results of this study indicate that (1) the factors associated with the utilization of communication media is characteristic of farmers, environmental factors, communication networks and application of agricultural innovations, (2) Farmers most common use of interpersonal communication was related to information about rice cultivation technology.

**Keywords:** communication medi; communication network; application of innovation.

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## **1. Introduction**

Multi Channel Dissemination (MCD) is a model of agricultural innovations that can accelerate the delivery of informations and innovations that generated by IAARD to users [1]. Submission of information and innovation carried out by involving the stakeholders and take advantage of various communication media. The type of media and communication channels are crucial components of MCD.

Media communication is a medium for the farmers to obtain information in agriculture. To obtain information related to the farming issues, farmers can take advantage of a variety of communications media available in Multi Channel Dissemination, the exhibition / demonstration (In-house visitor displays, public-display/expo, visitor plots, technology showcase), meeting forum (information gatherings, field meetings, retrieval technology applications, working meetings, technical meetings, seminars, symposiums, training courses, workshops, school fields, participatory activities etc.), print media (books, booklets, comic books, brochures, leaflets , flyers, posters, billboards, newspapers, magazines / journals, tabloids, news / newsletters, bulletins, liptan), and electronic media / digital (radio, television, internet, mobile phone (WAP), SMS Center, CD / VCD / DVD).

Dissemination of agricultural innovations using appropriate media and communication is expected to increase the adoption of innovation. This is in line with Berlo [2] that the media is one of the communication elements used to convey messages from the source to the receiver. Dissemination of information through communication media is a chain of reciprocal series and inseparable in efforts to disseminate innovation.

Based on the above description, it is necessary to do research related to factors associated with the use of communication media in MDC network, so that the strategies can be access in choosing the right communication media to disseminate agricultural innovations produced by the Agricultural Research Agency.

## **2. Limitation**

This study is limited to Setanggor Village, Central Lombok Regency, West Nusa Tenggara Province. This study is limited to rice farmers who are members of the Association of Mertak Jati Farmers Group in Setanggor Village. The application of agricultural technology discussed is the technology of rice cultivation which includes: the use of improved varieties, the application of planting systems, and fertilization.

## **3. Research methods**

This study is a descriptive correlational research, which analyzes the relationship between variables. The study was conducted in Setanggor, Central Lombok. Setanggor is the site of m-P3MI activities (model of Rural Agriculture Development through innovation) and the location of MCD application. The population of the study was rice farmers collected in the Mertak Jati Farmer Group, it consists of Tunas Maju, Tunas Paice I, Tunas Paice II, Suka Sedih, and Tunas Ice farmer groups. Respondents were selected over census and taken as many as 215 people. The research was conducted from November 2016 - January 2017. The primary data was collected through a structured interview using questionnaires, interviews, and observations in the field, while secondary data collected from Agencies scope of the Ministry of Agriculture, and the scope of the Local Government

Agencies through technical literature (desk study). The results of trials conducted in the Village instrument Cidahu the District Brass. Analysis of data to determine the relationship between variables using Pearson correlation analysis and Spearman Rank.

#### 4. Results and discussion

##### 4.1. Characteristics of Farmers

The characteristics of the individual farmer who studied include age, education, acreage, cosmopolitan, information and communication media ownership, the orientation of farming, and involvement in the group. A general description of the individual farmer characteristics by category of research variables are presented in Table 1.

**Table 1:** Characteristics of the individual farmer by category of research variables

The individual characteristics	Category	Number of people)	Percentage (%)
Age	Productive age (15-64 years)	199	92.56
	Unproductive age (> 64-year)	16	7.44
Education	Low	153	71.16
	moderate	32	14.88
	High	30	13.96
Acreage	Narrow	141	65.58
	moderate	53	24.65
	Large	21	9.77
Cosmopolitan	Low	135	62.79
	moderate	59	27.44
	High	21	9.77
media ownership	Low	200	93.02
information and	moderate	10	4.65
communication	High	5	2.33
Orientation farming	subsistence	4	1.86
	semi commercial	152	70.70
	Commercial	59	27.44
involvement in	Low	31	14.42
group	moderate	163	75.81
	High	21	9.77

Based on Table 1, indicate that the majority of respondents were in the age group of productive age (15-64 years) is as much as 92.56%. This class is included in the productive age categories as labor. Farmers who

belong to the category of childbearing age have high production capability in trying farmer. In addition they tend to be more receptive to new information and implement an innovation and risk-taking in business. According Soekartawi [7], a young age usually have more passion for wanting to know what is not yet known. Curiosity filled with seek information from a variety of communications media.

Of one's education relates to knowledge. The higher education pursued then knowledge will increase. By education level have been followed by the respondents, 71.16% had a low educational level is in the range of 0-6 years. But there are some respondents respondents have experienced education diploma level. Low education levels can reduce the Traffic farmers receive and seek new information for their farm activities. This low level of education can be addressed through counseling activities.

Land is one of the factors of production in agriculture farming activities. Based on Table 1 shows that most of the farmers land area (65.58%) including a narrow category. Conditions narrow land is not a problem for farmers in doing agribusiness processing (rice industry), because this business is done in groups in Jati Mertak Combined farmer groups.

Cosmopolitan is one indicator that the farmer in touch with other parties outside the social system with a wider interpersonal relationships. Cosmopolitan seen in this study based on the activity of farmers out of the village, receive or have guests from out of the village related to agriculture, as well as the activities of farmers in seeking information outside the social system through various communication media that is accessible or available in their environment. Harmoko research results and Darmansyah [5], showed that the factors affecting farmers in accessing agricultural information is a cosmopolitan level. The higher the (often) farmers seek agriculture information then access to the information will be higher.

The results showed that most respondents (62.79 percent) had a lower rate of cosmopolitan category. One cause is due to the low cosmopolitan rarely out of the village farmers to buy inputs. Production input requirements are already available in gapoktan Mertak Teak and loan system, which will be paid at the time of harvest. The high average cosmopolitannya is gapoktan and poktan administrators, and members of poktan the seed retailer. Information and communication media ownership of respondents categorized as low, averaging only had a TV (93.02 percent), and a small proportion of respondents who have a mobile, brochures, bulletins (2.33 percent). Orientation farming of respondents categorized as moderate (semi-commercial) as much as 70.70 percent, while the very small subsistence of 1.86 percent.

In this study, the involvement of farmers in the group measured by four indicators, namely membership in a group, the presence in the meeting of the group, active in the group, and a number of other social groups that followed. There are 3 types of meetings conducted by the groups, namely: first, meetings for planning of farming activities, including the type of technology to be used, the number and type of inputs needed by each member. Second, a meeting to discuss the source of farm capital and growth capital group. Third, the meeting for the provision of means of production and forms of cooperation that will be done. Table 1 shows that the involvement of farmers in the group in the category of medium (75.81 percent). Activities farmer groups in meeting increased as m-P3MI activities. This was triggered partly by the desire of farmers to obtain the

necessary information technology, facilitation of technological and institutional peasants by the relevant agencies, the social capital that has formed in the group relatekid to farming activities and the application of technology. Social capital is a reflection of the extent to which communities are made up of individuals who are uniquely able to develop relationships, interactions, and social transactions to realize the social structure. The relationship between members of the group also was a contributing factor to increased activity of a group meeting. This relationship is seen in the form of knowing each other farming activities, visit one another, the board visited the members, administrators have a sense of advancing group, and borrow from each other farming resources or capital. The relationship between members of farmer groups with other groups also evident from their participation in groups in society namely the banjar, wiridan / remembrance, gathering a group (group gathering rice, meat and gathering social gathering kecimol). Various forms of this gathering is intended to provide convenience for the citizens so that when they have events such as weddings, circumcisions or death they can help each other.

#### **4.2. Environmental factor**

Environmental factors in the study include: the availability of communications network infrastructure and the availability of access to information technology-based agricultural informationand communication. Table 2 presents data based on the variable environmental factors research.

**Table 2:** Faktor research environment variables by category

Environmental factor	Category	Number of people)	Percentage (%)
Availability of infrastructure	Not good	4	1.86
communication network	Good	144	66.98
	Very good	67	31.16
The availability of means of access	Not available	166	77.21
agricultural information	Available	49	22.79
based technologies			
information			

#### **4.3. Utilization of Media Communication**

Utilization of communication media in the study include: the level of media access and coverage information and communication resources. Table 3 presents the use of communication media based research variables.

Table 3 shows that farmers are already making use of conventional communication media, interpersonal communication media and ICT-based media. Utilization of interpersonal communication media very dominant farmers (98.14%). Widiyanti research results [8] states that the patterns of interpersonal communication and group have an influence on the communication patterns of farming. Interpersonal communication tend to have

extensive interaction in communication. It is also seen in the SDMC communication network, namely high interpersonal communication that occurs between farmers and extension workers and stakeholders.

**Table 3:** Pemanfaatan communication media by category of research variables

Utilization of communication media	Category	Number of people)	Percentage (%)
The level of communication and information access	Dominant utilizing conventional media	1	0:46
communication	Dominant utilize interpersonal media	211	98.14
	Dominant utilize ICT-based media	3	1:40
range of sources	Limited	136	63.26
information	Broad enough	55	25.58
	Large	24	11:16

#### 4.4. Application of Agricultural Innovation

The application of agricultural innovations in this research that rice cultivation technology involves the use of improved varieties, cropping systems legowo application, and fertilization. The following table presents the data of rice cultivation technology based on the category of the study variables.

**Table 4:** Rice cultivation technology research variables by category

Application of Agricultural Innovation	Category	Number of people)	Percentage (%)
Use of Varieties	Low	0	0
	moderate	16	7:44
	High	199	92.56
Implementation of the System	Low	40	18.61
	moderate	51	23.72
	High	124	57.67
Fertilization	Low	0	0
	moderate	2	0.93
	High	213	99.07
Application of Agricultural Innovation	Low	0	0
	moderate	31	14:42
	High	184	85.58

Table 4 shows that overall rice cultivation technology by farmers in Jati Mertak Gapoktan in the high category (85.58 per cent). The third indicator of the application of agricultural innovations in the high category, none of the farmers to apply the technology of rice cultivation are included in the low category. Cultivation technology of high impact on improving productivity. The research result Bulu (2015), shows that the productivity of rice before the implementation of m-P3MI relatively low (4.8 ton / ha). The average productivity of rice during the implementation of m-P3MI from 2011 to 2014 to reach 6.31 tonnes / ha / season or an increase rice productivity of 1.51 tonnes / ha / season.

Application of cropping systems are still relatively low compared to the use of improved varieties and fertilizer. This means that rice cultivation technology components Legowo planting system has not been widely applied to farmers. There are still many farmers who do tandur row planting system with irregular spacing. The number of farmers who have applied new Legowo planting system reached 57.67 percent. From in-depth interviews with farmers, the main difficulty of less enthruses Legowo planting system due to labor shortages planting or planting team. Planting labor is generally performed by transplanting female workers with limited skills to apply Legowo planting system. Besides wage labor (farm workers) tend to refuse to implement Legowo planting system unless there is an affirmation of the land owners to provide additional wage. This means that by applying Legowo planting system at no extra cost farming.

#### **4.5. Farmers Utilization Characteristics relationship**

##### **4.5.1. Communication media**

This study analyzed the relationship between the characteristics of the farmers with the use of communication media, using Spearman rank correlation. Table 5 presents data communication network connection with the use of communication media.

**Table 5:** The relationship between the characteristics of the farmers with the use of communication media

characteristics Farmers	Utilization of Media Communication	
	Tk. access mediaInformasi	Reach Resources
Age	-.054	-.137 *
Education	.202 **	.056
Acreage	-.015	.037
Cosmopolitan	-.004	.196 **
Media ownership information	.218 **	.057
Orientation farming	-.104	-.013
Involvement in group	-.083	-.004

\*\*. Correlation is significant at the 0:01 level (2-tailed).

\*. Correlation is significant at the 0:05 level (2-tailed).

Based on Table 5, Spearman rank correlation test results showed that there is a real and negative correlation between age and range of resources. This means that the higher the age of the farmer, the lower reach of the resources.

There is a very real and positive relationship between education and the level of access to information and communication media. This means that the higher the education the higher the level of access to media information. From the results of survey showed that farmers who have a lot of communication media on average educated, so that access to these communication media are also higher. The research result Kingdom et.al. [6] show that education has a relationship to the use of communication media. The use of the communication media include interpersonal and internet media.

There is a very real and positive relationship between cosmopolitan with a range of resources. This means that the higher the higher cosmopolitan scope of the resources. From the research shows that the range of farmer group union resources Mertak Jati still low, is still limited to only Setanggor Village neighborhood. The farmers who have a relatively high cosmopolitan is the group management / gapoktan, and farmers who also works as a production input retailers and farmers as well as freelance Electric Power Assist agricultural extension. Farmers are high cosmopolitannya has a high range of resources, which is spacious enough even widely to the outside of the province.

There is a very real and positive relationship between media ownership with the access level information and communication media. This means that the higher the ownership of the media, the higher their access to information and communication media.

#### **4.6. Relationships Between Environmental Factors and Utilization of Media Communication**

This study analyzed the relationship between environmental factors with the use of communication media, using Spearman rank correlation. Table 6 presents data environment factor with the use of communication media.

**Table 6:** The relationship between environmental factors with the use of communication media

Environmental factor	Utilization of Media Communication	
	Tk. Media Access Information	Reach Resources
Availability of communication network infrastructure	-.058	-.003
Availability of access to agricultural information based on information technology	.219 **	.110

\*\*. Correlation is significant at the 0:01 level (2-tailed).

Based on Table 6 Spearman rank correlation test results showed that there is a very real and positive relationship between the availability of means of access to information technology-based agricultural information with access level information and communication media. This means that the higher availability of means of access



to agricultural information based on information technology, the higher the level of access to the means of information. The result of the research shows that the availability of agricultural information access facilities based on information and communication technology is not yet available optimally, that is only 22.79% (Table 2) of farmers who obtain ICT-based information access facilities. This is indicated by the level of access to information and communication facilities from farmers who are still dominant in using interpersonal media (98.14%) while the utilization of ICT-based media is only 1.40% (Table 3).

#### 4.7. Use of the Media Communications and Communication Network

This study analyzed the relationship between the use of communication media with a communications network, using the Spearman rank correlation. Table 7 presents the data environment factor with the use of communication media.

**Table 7:** Relations utilization of communications media the communications network

Utilization of communication media	Local centrality	Proximity level	Togetherness level
Tk. Media access information	.092	.110	-.008
Range of resources	.067	.037	.262 **

\*\* Correlation is significant at the 0:01 level (2-tailed).

Based on Table 7 Spearman rank correlation test results showed that there is a very real and positive relationship between the range of resources to the level of togetherness. This means that the higher range of resources, the higher the level of the farmer togetherness. This shows that farmers broad range of information sources, will often be among the other farmers, so that interaction becomes more intensive.

#### 4.8. Use of the Media Relations Communications by Application of Agricultural Innovation

Table 8 presents data communication media utilization relationship with the application of agricultural innovations.

**Table 8:** Relations utilization of communications media with the application of agricultural innovations

Utilization of communication media	Application of Agricultural Innovation		
	The use of varieties of Excellence	Application of cropping systems	Fertilization
Tk. Media access information	.167 *	-.131	.150 *
Range of resources	-.289 **	-.002	-.047

\*\* Correlation is significant at the 0:01 level (2-tailed).

\* Correlation is significant at the 0:05 level (2-tailed).

Table 8 shows that there is real and positive relationship between the level of media access information with the use of high yielding varieties. This means that the higher the level of media access information, the use of high yielding varieties will also be higher. Research by Bulu et. al. [4] showed that interaction, access to information, communication frequency and intensity of communication has an important role in the adoption of corn innovation in East Lombok. Table 3 also shows that the dominant farmers utilize interpersonal communication media (97.14 percent), compared with the conventional media as well as the ICT-based media. Within the scope of this study, with the increasing number of farmers seeking information about the technology of cultivation of improved varieties in interpersonal by extension the use of higher yielding varieties (92.56 percent).

There is a real and positive relationship between the level of media access information with fertilization. This means that the higher the level of media access appropriate information then fertilization recommendations will also be higher.

There is a very real and negative correlation between the range of resources with the use of high yielding varieties. Table 3 shows that the range of information sources is still limited to the rural environment alone (63.26 percent), while in Table 4 shows that the use of high yielding varieties in the category (92.56 per cent). Depth interviews with farmers, seed requirement is mostly available in the village Setanggor. Farmers bought at kiosks farm in the village of Setanggor. In addition to a kiosk to buy in agriculture, seed requirements are provided by Gapoktan Mertak Jati.

## **5. Conclusion**

1. Characteristics of farmers consisting of age, education, cosmopolitan, and information and communication media ownership real touch with the utilization of communication media.
2. Availability of access to information related to the information technology-based agriculture is evident with the use of communication media.
3. Reach tangible resources related to communication networks and the use of improved varieties SDMC.
4. The level of media access real information related to the use of improved varieties and fertilizer.
5. Farmers Gapoktan Mertak Jati most dominant use of interpersonal communication in the search for information related to rice cultivation technology in communication networks Dissemination of Multi Channel Spectrum.

## **6. Suggestion**

For the development of SDMC communication network and improving the application of agricultural innovation, it is necessary to optimize the utilization of communication media through the provision of information and communication access facilities and infrastructure facilities improvement

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